

WHAT IS CLAIMED IS:

- dw
A,
1. An ink cartridge for an ink jet printer, comprising:
a housing having at least one wall;
at least two ink chambers for containing different ink accommodated in said housing;
and
ink supply ports formed in one wall of said housing within each of said ink chambers,
each of said ink supply ports having an inner opening and an outer opening,
wherein a first distance from said inner opening of a first ink supply port to that of a
second ink supply port adjacent to said first ink supply port is different from a second distance
from said outer opening of said first ink supply opening to that of said second ink supply port.
2. The ink cartridge of claim 1, wherein said first distance is greater than said second
distance.
3. The ink cartridge of claim 1, further comprising:
ink supply passages at least partly defining said ink supply port, each of said ink supply
passage projecting inward said housing from a bottom wall of said housing, said ink supply
passage communicating with said respective ink chamber at an inner end thereof; and
porous members impregnated with ink and fitted in each of said ink chambers and
engaging with said ink supply port through said ink supply passage.
4. The ink cartridge of claim 1, wherein said ink chamber comprises three chambers
separated from one another.

5. The ink cartridge of claim 1, wherein said ink chamber comprises five chambers separated from one another.

6. The ink cartridge of claim 3, wherein said each of said ink supply port compresses said respective porous member.

7. The ink cartridge of claim 3, wherein each of said ink supply passages is disposed at substantially a center of said respective ink chamber.

8. An ink cartridge for an ink jet printer, comprising:
a housing having at least one wall;
at least one ink chamber for containing ink accommodated in said housing;
and
an ink supply port formed in one wall of said housing said ink supply port having an inner opening and an outer opening, said ink supply port comprising at least one angled inner surface.

9. The ink cartridge of claim 6, wherein said angled surface is arcuated.

10. The ink cartridge of claim 6, wherein said inner surface of said ink supply port is entirely angled.

11. An ink cartridge for an ink jet printer, comprising:
a housing having at least one wall;
at least one ink chamber for containing ink in said housing;
an ink supply port formed in one wall of said housing at an end of said ink chamber, said ink supply port having an inner opening and an outer opening;

Sub E-17
ink supply passages at least partly defining said ink supply port, each of said ink supply passage projecting inward said housing from a bottom wall of said housing, said ink supply passage communicating with a respective ink chamber at an inner end thereof, said ink supply passage comprising a recessed part formed at a top thereof and a projecting edge surrounding said recessed part, said ink supply passage further comprising at least one protrusion member formed on said recessed part isolated from said projecting edge and a filter disposed on said projecting edge and said protrusion member; and

at least one porous member impregnated with ink, and fitted in each of said ink chambers and engaging with said ink supply port through said ink supply passage.

12. The ink cartridge of claim 9, wherein the height of said protrusion member is higher than that of said projecting edge when said filter is secured onto said projecting edge.

13. The ink cartridge of claim 9, wherein said protrusion member comprises two or more elongated protrusions.

14. The ink cartridge of claim 11, wherein said elongated protrusions extend toward said ink supply port which opens in said recessed part.

Sub B3
15. An ink cartridge for an ink jet printer, comprising:
a housing having walls and an opening, a top wall of said housing being constituted by a lid covering said opening of said housing;
at least one ink chamber defined by said housing and said lid;
an ink supply port formed on one of the walls of said housing;

B3
Can

at least one recess forming a space in an outer surface of said lid, the pressure within said space being lower than the atmospheric pressure when the ink cartridge is packed.

16. The ink cartridge of claim 15, further comprising a seal member, wherein said wall has an outer surface, the recess being covered by said seal member adhered onto the outer surface of the wall of said housing.

Sub E
Can 17. The ink cartridge of claim 16, wherein a portion of said seal member is removable, and said recess is disposed under the removable portion of said seal member.

18. The ink cartridge of claim 17, wherein said recess is disposed on a part of said lid which is spaced apart from said ink supply port.

19. The ink cartridge of claim 15, wherein the ink jet printer includes a carriage, the cartridge being mounted in the carriage and said recess is disposed on a part of said lid which is engageable with a member of the carriage when the ink cartridge is mounted on the carriage.

Sub B4 20. The ink cartridge of claim 19, further comprising a mounting lever mounted on the carriage wherein the member of the carriage comprises a rod projecting from the mounting lever.

Sub E
Can 21. The ink cartridge of claim 16, wherein plural number of said recesses are formed in the outer surface of said lid.

22. The ink cartridge of claim 15, further comprising a fine, circuitous groove formed in one surface of said lid where said recess is formed.

Sub
E1
Ant

23. The ink cartridge of claim 15, further comprising an air communication hole formed in said lid for communicating the interior of the ink cartridge with the atmospheric air, said air communication hole being disposed in the vicinity of said recess.

24. An ink cartridge for an ink jet printer, comprising:

- a housing having a bottom wall and an opening;
- an ink supply port formed on the bottom wall;
- a through hole formed in said lid and connecting the inside and outside of the ink cartridge;
- an air vent section formed on said lid which communicates with atmospheric air when the ink cartridge is in use;
- a circuitous channel formed in an outer surface of said lid and connecting said through hole to said air vent section, said circuitous channel comprising a tunnel part which is a hole formed in said lid;
- a first seal member affixed to said lid over said through hole and one part of said circuitous channel; and
- a second, removable seal member affixed to said lid over said air vent section, said second seal member being removed when the ink cartridge is in use.

25. The ink cartridge of claim 24, wherein said second seal member is spaced apart from said first seal member for defining a non-sealed portion, and said non-sealed portion of said lid is disposed over said tunnel part of said circuitous channel.

Sub
Ent

26. The ink cartridge of claim 24, further comprising a groove formed in an inner surface of said lid and connecting to said tunnel part of said circuitous channel.

27. The ink cartridge of claim 26, further comprising a third seal member affixed to the inner surface of said lid covering said groove.

28. The ink cartridge of claim 24, wherein said tunnel part of said circuitous channel is inclined to connect directly to said air vent section, and the depth of said tunnel part is shorter than the thickest part of said lid.

29. The ink cartridge of claim 24, further comprising ribs formed on the inner surface of said lid at portions thereof corresponding to said circuitous channel.

30. The ink cartridge of claim 24, further comprising a plurality of ink chambers for containing different inks therein, said ink chambers being formed within said housing, and a plurality of said circuitous channels and said through holes a respective circuitous route and through hole corresponding to a respective one of said ink chambers.

31. The ink cartridge of claim 30, wherein the ink cartridge comprises three ink chambers, three circuitous channels and one air vent section connecting to all the three circuitous channels.

32. The ink cartridge of claim 30, wherein the ink cartridge comprises five ink chambers, five circuitous channels and two air vent sections connecting to at least two of said five circuitous channels.

Sub
E/Cat

33. The ink cartridge of claim 24, further comprising a porous member fitted within an ink chamber defined by said housing and said lid, said porous member being impregnated with ink.

34. The ink cartridge of claim 24, further comprising a recess formed in the outer surface of said lid, and said air vent section being formed within said recess.

35. The ink cartridge of claim 34, wherein an opening of said air vent section is formed in a side wall of said recess.

36. An ink cartridge for an ink jet printer said ink jet printer having a member and ink supply needle, comprising:

a housing having at least one wall;
an ink supply port formed on the wall of said housing; and
at least one engaging hole means formed in the wall of said housing adjacent to said ink supply port, said engaging hole means being engageable with the member of the printer when the ink cartridge is mounted on the printer.

37. The ink cartridge of claim 36, wherein said engaging hole means engages with a projection formed on the ink jet printer, the height of the projection being greater than that of the ink supply needle of the ink jet printer.

38. The ink cartridge of claim 37, further comprising an abutment member which abuts against the projection of the ink jet printer when the ink cartridge is mounted in the improperly.

85
cont

39. The ink cartridge of claim 37, wherein the projection extends from a lever of a cartridge holder of the ink jet printer.

40. The ink cartridge of claim 36, wherein said ink supply port and said engaging hole means are formed on a bottom of said housing.

Sub B6

41. The ink cartridge of claim 40, wherein said ink supply port protrudes from the bottom wall of said housing.

42. The ink cartridge of claim 36, wherein said engaging hole means comprises an odd number of engaging holes.

43. The ink cartridge of claim 36, wherein said engaging hole means comprises an even number of engaging holes.

44. The ink cartridge of claim 42, wherein the position of said engaging holes are asymmetrical with respect to a center transversal line of said ink supply port.

45. The ink cartridge of claim 42, wherein at least two of the engaging holes are disposed along a line.

46. The ink cartridge of claim 43, wherein at least two of the engaging holes are disposed along a line.

47. The ink cartridge of claim 36, wherein said engaging hole means is rectangular in cross section.

48. The ink cartridge of claim 46, wherein a second engaging recess is formed on an outer surface of said lid.

49. The ink cartridge of claim 47, further comprising a porous member fitted in an ink chamber defined by said housing and said lid, said porous member being impregnated with ink and engaging with said ink supply port.

50. The ink cartridge of claim 46, further comprising a seal member affixed to an outer surface of said lid, a portion of said seal member being removable.

51. The ink cartridge of claim 46, wherein said lid has a center line, and said engaging recess is disposed at a position which deviates from the center line of said lid.

52. The ink cartridge of claim 46, wherein said engaging recess has capacity sufficient to receive gas escaped from the ink cartridge when the ink cartridge is packed in a package under a degassed condition.

53. The ink cartridge of claim 46, wherein the engaging recess engages with a rod projecting from a carriage of the printer onto which the ink cartridge is mounted.

54. The ink cartridge of claim 46, wherein said engaging recess is covered by a removable seal.

55. The ink cartridge of claim 46, wherein said cartridge holder includes a lever, said engaging recess engaging with a projection formed on a lever of a cartridge holder of the ink jet printer.

B6
Cont'd

56. The ink cartridge of claim 55, wherein said engaging recess comprising a first section for receiving the projection of the lever and a second section for receiving the member of the printer, and said first section and said second section being formed continuously.

Sub
Ent 7

57. An ink cartridge for an ink jet printer, comprising:
a housing having a wall and an opening,
a lid covering said opening of said housing;
an ink supply hole formed on said wall of said housing; and
at least one engaging recess formed on said wall of said housing, said engaging recess being engageable with a member of the printer when the ink cartridge is correctly mounted on the printer.

Sub
B7

58. An ink jet printer, comprising:
a carriage, said carriage having a member extending therefrom;
a print head including a plurality of nozzles through which ink is ejected mounted on said carriage;
an ink cartridge, said ink cartridge being mounted on the carriage and, said ink cartridge comprising:
a housing having walls and an opening, a top wall of said housing being constituted by a lid covering said opening of said housing;
at least one ink chamber defined by said housing and said lid;
an ink supply port formed on one of the walls of said housing;

B7
canid

at least one recess forming a space in an outer surface of said lid and engagable with said member when the ink cartridge is mounted on the carriage, the pressure within said space being lower than the atmospheric pressure when the ink cartridge is packed.

59. The ink cartridge of claim 58, further comprising a seal member, wherein said wall has an outer surface, the recess being covered by said seal member adhered onto the outer surface of the wall of said housing.

60. The ink cartridge of claim 58, further comprising a mounting lever mounted on the carriage wherein the member of the carriage comprises a rod projecting from the mounting lever.

61. The ink cartridge of claim 59, wherein plural number of said recesses are formed in the outer surface of said lid.

Sub 89

62. An ink jet printer, comprising:

- a carriage, said carriage having a member extending therefrom;
- a print head including a plurality of nozzles through which ink is ejected mounted on said carriage;
- an ink cartridge, said ink cartridge being mounted on the carriage and, said ink cartridge comprising:
 - a housing having at least one wall;
 - an ink supply port formed on the wall of said housing; and

BA
Con. 2

at least one engaging hole means formed in the wall of said housing adjacent to said ink supply port, said engaging hole means being engageable with the member of the printer when the ink cartridge is mounted on the carriage.

ay
A3

63. The ink cartridge of claim 62, wherein said engaging hole means engages with a projection formed on the ink jet printer, the height of the projection being greater than that of the ink supply needle of the ink jet printer.

64. The ink cartridge of claim 63, further comprising an abutment member which abuts against the projection of the ink jet printer when the ink cartridge is mounted in the improperly.

65. The ink cartridge of claim 63, wherein the projection extends from a lever of a cartridge holder of the ink jet printer.

66. The ink cartridge of claim 62, wherein said ink supply port and said engaging hole means are formed on a bottom of said housing.

67. The ink cartridge of claim 66, wherein said ink supply port protrudes from the bottom wall of said housing.

68. The ink cartridge of claim 62, wherein said engaging hole means comprises an odd number of engaging holes.

69. The ink cartridge of claim 62, wherein said engaging hole means comprises an even number of engaging holes.

70. The ink cartridge of claim 68, wherein the position of said engaging holes are asymmetrical with respect to a center transversal line of said ink supply port.

71. The ink cartridge of claim 68, wherein at least two of the engaging holes are disposed along a line.

72. The ink cartridge of claim 69, wherein at least two of the engaging holes are disposed along a line.

73. The ink cartridge of claim 62, wherein said engaging hole means is rectangular in cross section.

74. The ink cartridge of claim 72, wherein a second engaging recess is formed on an outer surface of said lid.

75. The ink cartridge of claim 73, further comprising a porous member fitted in an ink chamber defined by said housing and said lid, said porous member being impregnated with ink and engaging with said ink supply port.

76. The ink cartridge of claim 72, further comprising a seal member affixed to an outer surface of said lid, a portion of said seal member being removable.

77. The ink cartridge of claim 72, wherein said lid has a center line, and said engaging recess is disposed at a position which deviates from the center line of said lid.

78. The ink cartridge of claim 72, wherein said engaging recess has capacity sufficient to receive gas escaped from the ink cartridge when the ink cartridge is packed in a package under a degassed condition.

79. The ink cartridge of claim 72, wherein the engaging recess engages with a rod projecting from a carriage of the printer onto which the ink cartridge is mounted.

80. The ink cartridge of claim 72, wherein said engaging recess is covered by a removable seal.

81. The ink cartridge of claim 72, wherein said cartridge holder includes a lever, said engaging recess engaging with a projection formed on a lever of a cartridge holder of the ink jet printer.

82. The ink cartridge of claim 81, wherein said engaging recess comprising a first section for receiving the projection of the lever and a second section for receiving the member of the printer, and said first section and said second section being formed continuously.

add A₄
add B₁₃
add
10'
add
E₁